

Application No. 09/936,930

Art Unit 1771

April 14, 2004

Reply to Office Action Dated October 15, 2003

**AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

1. **(Withdrawn)** A pressure-sensitive adhesive sheet for removal of a solvent-containing substance, the sheet comprising a substrate and a pressure sensitive adhesive layer formed at least on one side of the substrate, wherein the pressure sensitive adhesive layer adsorbs 20 g/m<sup>2</sup> or more of a solvent contained in the substance to be removed when the pressure-sensitive adhesive sheet is immersed in the solvent for 3 minutes.

2. **(Currently Amended)** A pressure-sensitive adhesive sheet for removal of a solvent-containing ~~substance~~, substance by sticking to and peeling off from an article to be cleaned, the sheet comprising a substrate and a pressure-sensitive adhesive layer, excluding a foaming pressure sensitive adhesive layer, formed at least on one side of the substrate,

wherein the pressure-sensitive adhesive layer comprises:

(A) acrylic pressure-sensitive adhesive comprising a base polymer formed by a base monomer of 40% to 98% by weight, a

Application No. 09/936,930

Art Unit 1771

April 14, 2004

Reply to Office Action Dated October 15, 2003

comonomer of 0% to 50% by weight, and a functional-group-containing monomer of 0.5% to 15% by weight of the total monomer components or

(B) rubber pressure-sensitive adhesive selected from natural rubber pressure-sensitive adhesives, styrene-butadiene copolymers, polyisobutylene, and styrene-isoprene-styrene copolymers;

wherein said pressure-sensitive adhesive layer absorbs 5 g/m<sup>2</sup> or more of a solvent contained in the substance to be removed when the pressure-sensitive adhesive sheet is immersed in the solvent for 1 second, and wherein the pressure-sensitive adhesive sheet after absorbing 5g/m<sup>2</sup> of the solvent has a tackiness of 3 ~~cN/25-mm~~ cN/25-mm or more as determined by a method in conformity with Japanese Industrial Standards (JIS) Z 0237.

3. **(Amended)** A pressure-sensitive adhesive sheet for removal of a solvent-containing ~~substance,~~ substance by sticking to and peeling off from an article to be cleaned, the sheet comprising a substrate and a pressure sensitive adhesive layer formed at least on one side of the substrate,

wherein the pressure-sensitive adhesive layer comprises:

(A) acrylic pressure-sensitive adhesive comprising a base polymer formed by a base monomer of 40% to 98% by weight, a comonomer of 0% to 50% by weight, and a functional-group-containing monomer of 0.5% to 15% by weight of the total monomer components or

Application No. 09/936,930

Art Unit 1771

April 14, 2004

Reply to Office Action Dated October 15, 2003

(B) rubber pressure-sensitive adhesive selected from natural rubber pressure-sensitive adhesive, styrene-butadiene copolymers, polyisobutylene, and styrene-isoprene-styrene copolymers;  
wherein said pressure-sensitive adhesive layer absorbs 5 g/m<sup>2</sup> or more of a solvent contained in the substance to be removed when the pressure-sensitive adhesive sheet is immersed in the solvent for 1 second, and wherein no stain is observed in a stainless steel plate (a SUS 430BA plate) by visual inspection when the pressure-sensitive adhesive sheet after absorbing 5 g/m<sup>2</sup> of the solvent is stuck to the stainless steel plate by a reciprocating motion of a 2-kg rubber roller and is peeled off from the stainless steel plate.

4. (Canceled)

5. (Withdrawn) A pressure-sensitive adhesive sheet for removal of a solvent-containing substance, the sheet comprising a substrate and a pressure-sensitive adhesive layer formed at least on one side of the substrate, wherein a difference  $\Delta\delta$  between the solubility parameter (SP)  $\delta_1$  [(J/cm<sup>3</sup>)<sup>1/2</sup>] of a pressure-sensitive adhesive constituting the pressure-sensitive adhesive layer and the solubility parameter (SP)  $\delta_2$  [(J/cm<sup>3</sup>)<sup>1/2</sup>] of a solvent contained in the solvent-containing substance to be removed falls within a range of  $\pm 4$  [(J/cm<sup>3</sup>)<sup>1/2</sup>].

**Application No. 09/936,930**

**Art Unit 1771**

**April 14, 2004**

**Reply to Office Action Dated October 15, 2003**

6. **(Withdrawn)** A pressure-sensitive adhesive sheet for removal of a solvent-containing substance, the sheet comprising a substrate and a pressure-sensitive adhesive layer formed at least on one side of the substrate, wherein the pressure-sensitive adhesive contains fine particles.

7. **(Withdrawn)** The pressure-sensitive adhesive sheet for removal of a solvent-containing substance according to claim 6, wherein the fine particles have a mean particle size of from 0.01 to 10  $\mu\text{m}$ .

8. **(Currently Amended)** The pressure-sensitive adhesive sheet for removal of a solvent-containing substance according to ~~any one of claims 1 to 7,~~ claim 2 or 3, wherein the pressure-sensitive adhesive layer before use has a tackiness of from 1 to 400 cN/25-mm as determined by a method in conformity with JIS Z 0237.

9. **(Withdrawn)** The pressure-sensitive adhesive sheet for removal of a solvent-containing substance according to claim 1, wherein the pressure-sensitive adhesive sheet is for use in cleaning of a screen printing plate.

10. **(Withdrawn)** A method for removing a solvent-containing substance deposited on an article to be cleaned, the method comprising

**Application No. 09/936,930**

**Art Unit 1771**

**April 14, 2004**

**Reply to Office Action Dated October 15, 2003**

the step of using a pressure-sensitive adhesive sheet, the pressure-sensitive adhesive sheet comprising a substrate and a pressure-sensitive adhesive layer formed at least on one side of the substrate, wherein the pressure sensitive adhesive layer adsorbs  $20 \text{ g/m}^2$  or more of a solvent contained in the solvent-containing substance to be removed when the pressure-sensitive adhesive sheet is immersed in the solvent for 3 minutes.

11. **(Withdrawn)** A method for removing a solvent-containing substance deposited on an article to be cleaned, the method comprising the step of using a pressure-sensitive adhesive sheet, the pressure-sensitive adhesive sheet comprising a substrate and a pressure-sensitive adhesive layer formed at least on one side of the substrate, wherein the pressure-sensitive adhesive layer absorbs  $5 \text{ g/m}^2$  or more of a solvent contained in the solvent-containing substance to be removed when the pressure-sensitive adhesive sheet is immersed in the solvent for 1 second, and wherein the pressure-sensitive adhesive sheet after absorbing  $5 \text{ g/m}^2$  of the solvent has a tackiness of  $1 \text{ cN/25-mm}$  or more as determined by a method in conformity with JIS Z 0237.

12. **(Withdrawn)** A method for removing a solvent-containing substance deposited on an article to be cleaned, the method comprising the step of using a pressure-sensitive adhesive sheet, the pressure-

**Application No. 09/936,930**

**Art Unit 1771**

**April 14, 2004**

**Reply to Office Action Dated October 15, 2003**

sensitive adhesive sheet comprising a substrate and a pressure-sensitive adhesive layer formed at least on one side of the substrate, wherein the pressure-sensitive adhesive layer absorbs  $5 \text{ g/m}^2$  or more of a solvent contained in the solvent-containing substance to be removed when the pressure-sensitive adhesive sheet is immersed in the solvent for 1 second, and wherein no stain is observed in a stainless steel plate (a SUS 430BA plate) by visual inspection when the pressure-sensitive adhesive sheet after absorbing  $5 \text{ g/m}^2$  of the solvent is stuck to the stainless steel plate by a reciprocating motion of a 2-kg rubber roller and is peeled off from the stainless steel plate.

13. **(Withdrawn)** A method for removing a solvent-containing substance deposited on an article to be cleaned by the use of a pressure-sensitive adhesive sheet, the pressure-sensitive adhesive sheet comprising a substrate and a pressure-sensitive adhesive layer formed at least on one side of the substrate, the method comprising the steps of (a) determining the solubility parameter (SP)  $\delta_1$  [ $(\text{J/cm}^3)^{1/2}$ ] of a pressure-sensitive adhesive constituting the pressure-sensitive adhesive layer, (b) determining the solubility parameter (SP)  $\delta_2$  [ $(\text{J/cm}^3)^{1/2}$ ] of a solvent contained in the solvent-containing substance to be removed, and (c) selecting such a pressure-sensitive adhesive sheet that a difference  $\Delta\delta$  between  $\delta_1$  and  $\delta_2$  falls within a range of  $\pm 4$  [ $(\text{J/cm}^3)^{1/2}$ ] and removing the

**Application No. 09/936,930**

**Art Unit 1771**

**April 14, 2004**

**Reply to Office Action Dated October 15, 2003**

solvent-containing substance with the use of the selected pressure-sensitive adhesive sheet.

14. **(Withdrawn)** The method for removing a solvent-containing substance according to claim 13, wherein, in Step (a), the pressure-sensitive adhesive sheet is immersed respectively in plural solvents having different solubility parameters (SPs) to thereby determine the degree of swelling or gel fraction of the pressure-sensitive adhesive constituting the pressure-sensitive adhesive layer, and the solubility parameter (SP) of a solvent, in which the pressure-sensitive adhesive exhibits the maximum degree of swelling or the minimum gel fraction, is defined as the solubility parameter (SP)  $\delta_1$   $[(J/cm^3)^{1/2}]$  of the pressure-sensitive adhesive constituting the pressure-sensitive adhesive layer of the pressure-sensitive adhesive sheet.

15. **(Withdrawn)** A method for removing a solvent-containing substance deposited on an article to be cleaned, the method comprising the step of using a pressure-sensitive adhesive sheet, the pressure-sensitive adhesive sheet comprising a substrate and a pressure-sensitive adhesive layer formed at least on one side of the substrate, wherein the pressure-sensitive adhesive layer contains fine particles.

**Application No. 09/936,930**

**Art Unit 1771**

**April 14, 2004**

**Reply to Office Action Dated October 15, 2003**

16. **(Withdrawn)** A sheet for removal of a solvent-containing substance, the sheet comprising a substrate and a pressure-sensitive adhesive layer or a foam layer formed at least on one side of the substrate, wherein the sheet has been subjected to antistatic treatment.

17. **(Withdrawn)** The sheet for removal of a solvent-containing substance according to claim 16, wherein at least one of both sides of the sheet has a surface resistivity of  $10^{13} \Omega$  or less.

18. **(Withdrawn)** The sheet for removal of a solvent-containing substance according to claim 16 or 17, wherein the sheet is for use in cleaning of a screen printing plate.

19. **(Withdrawn)** A method for removing a solvent-containing substance deposited on an article to be cleaned, the method comprising the step of using a sheet, the sheet comprising a substrate and a pressure-sensitive adhesive layer or a foam layer formed at least on one side of the substrate, wherein the sheet has been subjected to antistatic treatment.

20-21. **(Canceled)**



Application No. 09/936,930

Art Unit 1771

April 14, 2004

Reply to Office Action Dated October 15, 2003

22. **(Currently Amended)** The pressure-sensitive adhesive sheet for removal of a solvent-containing substance according to claim 20, 2 or 3, wherein said acrylic pressure-sensitive adhesive comprises a the polymer obtained by polymerizing a the monomer mixture, ~~comprised of from 40% to 98% by weight of a base monomer for imparting adhesion, from 0% to 50% by weight of a comonomer for imparting cohesiveness and from 0.5% to 15% by weight of a functional-group-containing monomer, where and~~

wherein the base monomer is at least one selected from the group consisting of acrylic C<sub>2</sub>-C<sub>10</sub> alkyl esters,

the comonomer is at least one selected from the group consisting of methyl acrylate, alkyl methacrylates, vinyl esters, styrenic monomers, and acrylonitrile, and

the functional-group-containing monomer is at least one selected from the group consisting of carboxyl group containing monomers, acid anhydride group containing monomers, hydroxyl group containing monomers, epoxy group containing monomers, amido group containing monomers, and amino group containing monomers.

23. **(Currently Amended)** The pressure-sensitive adhesive sheet for removal of a solvent-containing substance according to ~~any one of claims 1 to 7~~, claim 2 or 3, wherein said pressure-sensitive adhesive layer comprises a pressure-sensitive adhesive polymer and a crosslinking agent

**Application No. 09/936,930**

**Art Unit 1771**

**April 14, 2004**

**Reply to Office Action Dated October 15, 2003**

in the amount of from 1 to 30 parts by weight relative to 100 parts by weight of the pressure-sensitive adhesive polymer.